Electricity on the Farm

A MONTHLY MAGAZINE FOR THE UP-TO-DATE RURAL FAMILY

What is your title for this picture?

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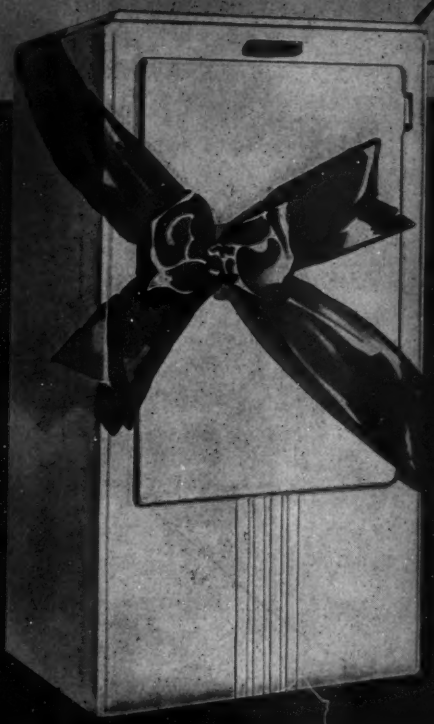
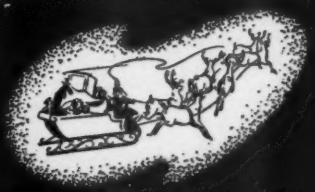
(See inside back cover for details)

December 1936

"GIVE A WESTINGHOUSE *Refrigerator*"





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12 months of the year

Useful gifts as exciting as this Westinghouse are rare.. Look ahead to the year-'round thrill of its special conveniences...Triple Food Saver Set, Built-in Crisping Pan, Utility Basket, Water Cooler, Adjusto-Shelf, interior light, sweet-clean porcelain lining. And ask where it stands in operating cost!... Make it "the Christmas of a lifetime" with a Westinghouse.

ONLY WESTINGHOUSE OFFERS ALL THESE GIFT-WORTHY FEATURES

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No gift you can make your family—and yourself—will mean so much as a Goulds CID Water Supply System. Every day of every year they will enjoy the added comfort and convenience of a modern bathroom, kitchen and laundry—the glowing health that comes with easy cleanliness—hours free from the drudgery of pumping and pail carrying. Give yourself added profits. Water in abundance means more and better milk and eggs, fattens hogs and cattle for market in less time, increases the yield of your garden. Make 1936 a year to be remembered.

There is a Goulds CID Water Supply System to meet every capacity requirement from shallow or deep wells. Completely automatic operation provides an abundance of water where and when you want it at the turn of a faucet. Unequalled quality and the finest of materials and workmanship assure trouble-free service year after year.

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6509

December, 1936

Electricity on the Farm

Vol. 9, No. 12

EDITORIAL

MERRY CHRISTMAS

No trumpet-blast profaned
The hour in which the Prince of Peace was born;
No bloody streamlet stained
Earth's silver rivers on that sacred morn.

WM. CULLEN BRYANT.

How different this Christmas from the first, nearly twenty centuries ago. Then there was tranquility over most of the world. Today there is tension between nations—almost to the breaking point. War of rebellion already flames in one country, while other nations are virtually participants in the struggle through their furnishing forbidden military supplies to either side.

It is thus to an apprehensive and war worried world that the Christmas message of "Peace on earth, good will to men," this year is given.

This country of ours is truly a haven of peace in an unsettled world. There are no jealous neighbors looking with avaricious eyes at any of our possessions. There are as yet no internal enemies of sufficient strength to cause apprehension. Our republic seems destined to stand secure as long as those in power are willing to accept the guidance of our ancestors who built this ship of state and set its helm to carry us along a course free of peril.

With our present security, in a world of turmoil, we are particularly blessed this Christmas. Truly, peace remains with us.

And may we, in the spirit of the season, extend to you our heartiest wish for a very happy Christmas and a New Year of good health and increased prosperity.

FRED SHEPPERD.

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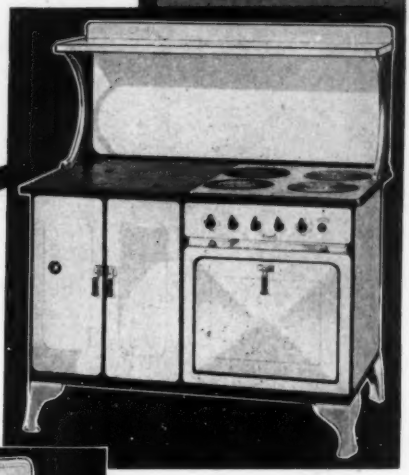
MONARCH

Again Steps Forward

WITH A COMBINATION ROOM HEATER
ELECTRIC RANGE AND WATER HEATER



BELIEVE IT OR NOT, the beautiful, compact Monarch at the right is a room heater, an electric range and a water heater *all in one!* And how you will enjoy it. No more cold kitchens. No more drafty floors. Plenty of hot water always ready. Eight surface cooking units at your service.

Built-in heater (left section) has a large, deep firebox with duplex grates. Burns coal or wood. Easily and quickly produces plenty of warmth in the kitchen; also provides adequate heat for surface cooking and for water tank as well.

All Monarch Exclusive Features Included

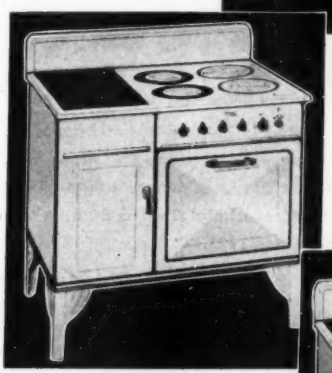
Electric section (at right) has four Monarch "Hi-Efficiency" units on the spacious cooking top. Large electric oven is well insulated, with automatic temperature control.

A water tank, with electric heating unit and temperature control, is built in the middle section. Heats water quickly, efficiently. Controlled by hand switch and automatic thermostat.

Of course, this "3-in-1" Fuelectric (No. CE47PW) is Full Porcelain Enamel, like all Monarch Ranges. And you have a color choice of White or Ivory-Tan.

See this new Monarch model at your Electric Company's display rooms, or write direct to us for free and complete information at once.

MALLEABLE IRON RANGE CO.
1412 Lake Street, Beaver Dam, Wis.



Here are two more Monarch combination room heater and electric range models worth investigating. Model HR47JW fuel section burns wood, coal, or cobs. Model HE47JW is equipped with an electric room heater unit. Model H47JW (below) has 2-lid top over firebox. Electric surface units and ovens have all standard Monarch construction.

Remember ALL MONARCH Ranges Are
FULL PORCELAIN
(VITRIFUSED GLASS-COATED STEEL)

Monarch
ELECTRIC

LIGHTING THE FARM HOME
Modern Methods
THE FARM WIRING PROBLEM
I AM ELECTRICITY
SOIL STERILIZER
RUNNING WATER Pays Big Dividends
FARM . .
"How should my farm be lighted ?"
"What will my profits be ?"

Questions?

Here are your answers!

YOU are vitally interested in helping farmers make the fullest profitable use of electricity at the lowest possible cost. The many General Electric bulletins on rural electrification give just the information you need — the result of the work of General Electric's corps of specially trained men, who have been working with active groups in this field since 1923.

Below are listed some of the informative bulletins which we shall be glad to send you without charge. Or, if you have special problems, write Rural Electrification Section, General Electric, Schenectady, N. Y.

GENERAL ELECTRIC

General Electric, Dept. 6D-201, Schenectady, N. Y.

Please send me, without charge, copies of the booklets checked below.

- ☐ *Soil Heating, Soil Sterilizing, Light and Plant Growth, GEA-1644E*
- ☐ *Portable Farm Motors, GEA-192*
- ☐ *Running Water Pays Big Dividends, GEA-2075*
- ☐ *Cost of Operating Farm and Home Equipment, GEA-2248*
- ☐ *I Am Electricity, GEB-89*
- ☐ *Romance of the Electric Motor, GEC-41*
- ☐ *Electric Helpers for the Farm, GEC-89*
- ☐ *Electrical Equipment for the Home, GES-1291*
- ☐ *Farm Wiring, 51-60*
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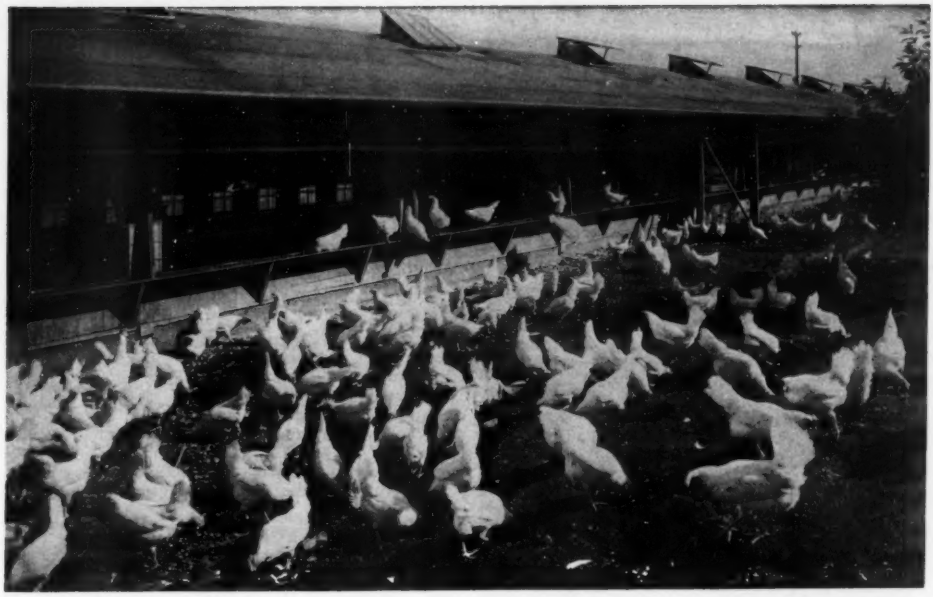


Typical Western Washington poultry flock.

WATER WARMING PREVENTS SLUMP in Egg Production

By J. C. SCOTT

WESTERN Washington poultrymen are realizing more each year that greater profits from poultry depend not only upon laying hens having plenty of fresh water before them at all times, but that the temperature of the water must be kept well above freezing during the entire winter.

The experience of a few of these poultrymen will certainly bear out this fact:

In 1935 C. F. Schramm, a very successful poultryman living near Oakville, Washington, had a flock of 550 pullets, which were laying 85%, that is, 85 eggs per day per 100 birds, during October.

All of a sudden the weather turned cold enough for the water in the troughs to become icy cold. Mr. Schramm said:

"The hens suddenly went down in their egg production to the extent of one case of eggs a week. I had never used electric water warmers, but realized I had to do something to keep warmer water before the hens and do it quickly. I installed electric water warmers which operated on a thermostat, keeping the water at between 50° and 55°, regardless of the weather, and the pullets came back to normal lay. You can see that a man can easily lose the price of several water warmers and all the electricity it takes to operate them, during one winter, through a drop in egg production.

"These pullets laid 85% during the fall and early part of the winter when the price of eggs was high, but by spring they dropped to 75% and then to 65%. However, they never would have made such an exceptionally high average lay during the winter if I had not kept the water warm."

Profits to the commercial egg producer do not depend entirely upon his ability to get hens to lay a large number of eggs during the year. It is the nature of hens to lay heavily in the spring and lightly in the fall and early winter. The real money in egg production business results from changing the natural habits of layers to the extent that they go into their heaviest production during the fall and early winter instead of in the spring.

Of course we all realize that in order to accomplish this, it is necessary to use chickens which are bred to lay; chickens that have been properly incubated, brooded and well cared for during the

Upper: Poultry trough with electric water warmer on F. T. Ferris farm, Chehalis, Wash.

Lower: Poultry trough with hotbed cable used as electric water warmer operated by thermostat on C. F. Schramm farm, Oakville, Wash.

development period. It is also important to see that they get the right feed for egg production and for the general health and vigor of the birds.

The two important factors in high fall and winter egg production are lights and warm water. By warm water we do not mean that it should be luke warm. Experiments at the Western Washington Experiment Station at Puyallup prove that hens will drink as much water at 55° during the winter, as they will when it is 70°. The warming of water from 55 to 70° results in considerable additional expense. It is to the poultryman's advantage to keep the water as near 50 to 55° as possible.

Mr. Schramm, in speaking of his experience, says the cold weather in itself is not the cause of egg slumps. It is the cold water that causes the damage, by the fact that the chickens drink less. Decreased consumption of water results in the layers eating less mash, all of which results not only in decrease in egg production, but a decrease in the size of eggs laid.

F. T. Ferris, well known poultryman living near Chehalis, Washington, has been using electric water warmers for the past five years. In answer to a question as to why he considered water warmers important, he said:

"Simply because the chickens will not drink icy cold water until they are forced to, and then of course they do not drink enough to enable them to lay as many eggs as they otherwise would."

Mr. Ferris keeps about 1,200 pullets each year. They are kept in the laying house for about 11½ months, and then sold. The houses are cleaned to make room for the next flock of pullets. During the year this flock averages about 72% lay. You will recognize the fact that it is necessary to have the right pullets and to keep conditions continually right every day in the year, in order to get such a large number of pullets to lay an average of 72% every day for 11½ months. Mr. Ferris, in commenting on this, said:

"It can't be done if the layers come to the troughs a few mornings and find icy cold water to drink. In fact you must never allow the water to get too cold. I use electric water warmers because they save a tremendous amount of labor which was necessary when we used to heat water at the house and then carry it to my six chicken houses.

"It has been my experience," Mr. Ferris continued, "that warm water during the winter makes a difference of 14 to 15 eggs per pullet per year, or about 1,500 dozen eggs."

At an average winter price of 30 cents a dozen, this would amount to a gross profit of about $450.00.

The cost of operating electric water warmers on thermostat in Western Washington weather conditions averages $1.30 per season for 100 birds, which, for 1,200 birds, would be $15.60 for the entire winter season. The cost of electric heaters for a flock of 1,200 birds runs from $25 to $75, depending on the amount of wiring necessary to hook them up, and the type of heater used, so that the cost of installation and operation is negligible in comparison to the increased profits due to keeping the water at the proper temperature for hens during the winter.

A few days ago I had an opportunity to call on H. E. Nichols, poultryman who lives in Snohomish County, Washington. I noticed that Mr. Nichols was getting water warmers ready for the winter season. In speaking of his flock of 600 hens, he said:

"They have always paid me a profit, and I think a good part of this profit is due to the fact the water troughs are never frozen in the winter. In fact, the water is kept comparatively warm."

I asked Mr. Nichols how he happened to start warming water, and he answered me in these words:

"One spring I was warming water in the house and carrying it out to the baby chicks. You know we are very particular about our baby chicks having water at about body temperature for the first week or two. A friend of mine asked me: 'Why not put in electric water warmers? They will save a lot of trouble.' I followed his advice and was so well pleased with the results that I began to figure on water warmers for the hens the following fall.

"For years I had noticed that hens go down in egg production every time we have a cold spell of weather, and unless something is done about it immediately it is very hard to get them back into full lay again.

"Well, anyway, we installed the electric warmer for the hens, and believe me, it has been a great help to use for the simple reason that we have had no more difficulty with a slump in egg production during the cold weather. The temperature of the water is the same whether the weather is cold or warm."

J. E. Travis, Pinehurst, Washington, White Leghorn breeder who belongs to the Washington R. O. P. Breeders Association, has made some splendid official records with his hens. He has one

hen with a record of 326 eggs a year, several with records of 300 eggs, and many with records of 250 eggs or more. He keeps about 750 breeders, and has been trapnesting for several years, selling approximately 15,000 baby chicks each year. Mr. Travis has been using electric water warmers for a number of years.

In speaking of his experience in the connection, he remarked that he has "found that during cold weather the hens may hold up on egg production for a week, but sooner or later it will go down, unless the drinking water is kept warm, that is, about 50°. I find that warm water constantly before the hens during the winter not only has a tendency to prevent a slump in egg production, but that the hens produce larger eggs. Another important discovery I made is this: It is not a good practice to turn the electric heater off after a cold snap. I keep the water at the same temperature during the entire winter. To hold up egg production of hens, especially in winter, it is necessary to make just as few changes as possible, either in feed or water."

Another Western Washington poultryman who is very enthusiastic over the results obtained with electric water warmers, Mr. H. B. Kennedy of Everett, Washington. Mr. Kennedy said:

"I would surely be up against it without this water warmer. I feel that in order to make money with chickens we must keep the drinking water warm during the winter. I have noticed one thing in particular. Small eggs do not bring anywhere near as much money as large eggs. When hens are forced to drink water approaching freezing temperature, many of the eggs they lay are small.

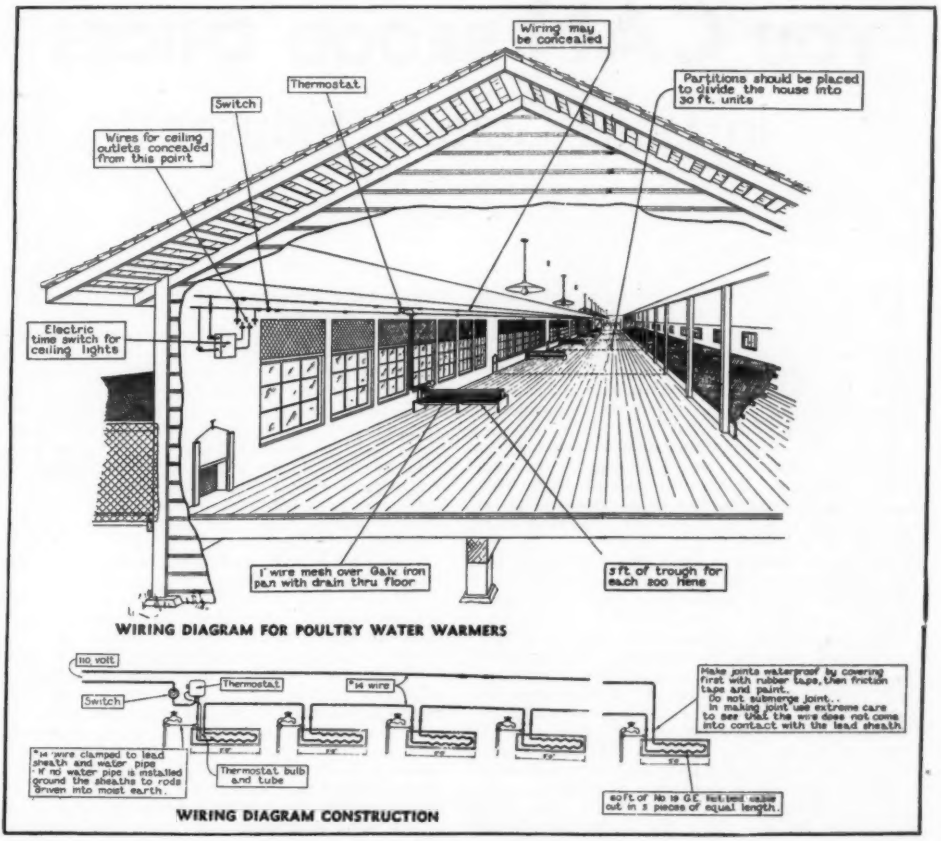
"Another thing: unless you have an electric water warmer that keeps the temperature of the water even, you will get up some morning to find icy water, and you can just bet you are going to have a slump in egg production unless the water is warmed up immediately, and kept warm."

Profits in nearly all livestock production are materially affected by icy cold water.

The Idaho Experiment Station has found that it was easier to fatten beef and sheep when they had plenty of warm water rather than icy cold water.

The temperature of the water when it first comes from the well differs considerably in different parts of the country. However, the general average is about 50°. Consequently, it is only necessary to keep the water up to normal temperature until the livestock have an opportunity to drink it.

Diagrammatic sketch of poultry house, showing wiring layout for installation of water warming units


Wiring may be concealed
Thermostat
Switch
Partitions should be placed to divide the house into 30 ft. units
Wires for ceiling outlets concealed from this point
Electric time switch for ceiling lights
1" wire mesh over Galv iron pan with drain thru floor
3 ft. of trough for each 200 Hens
WIRING DIAGRAM FOR POULTRY WATER WARMERS
110 volt
Switch
Thermostat
#14 wire
Thermostat bulb and tube
#14 wire clamped to lead sheath and water pipe. If no water pipe is installed ground the sheaths to rods driven into moist earth.
Make joints waterproof by covering first with rubber tape, then friction tape and paint. Do not submerge joint... In making joint use extreme care to see that the wire does not come into contact with the lead sheath.
soft of No 18 G.E. Heating cable cut in 3 pieces of equal length.
WIRING DIAGRAM CONSTRUCTION

YOU CAN BROOD CHICKS in Cold Colony Houses

By W. T. ACKERMAN

THERE are those that insist that "you can't brood chickens under an electric brooder in unheated individual colony houses in the northern states in the winter months." I don't know as I blame the folks that haven't had a chance to see or use these brooders for their skepticism. They certainly are distinctly different in principle than what we've been used to.

But, on the other hand, if anybody had told our grandfathers that we would eat out of tin cans, ride in tin cans, listen to tin cans—and now they are trying to make us *live* in tin cans—well, you can imagine how they would have boomed at us through their beards.

We are in times of great and rapid change, and the skepticism of the average poultryman about electric brooding is probably no greater than ours was, as to whether it would work or not, when we started experiments a few years ago.

The fact remains, however, that we have done it, with far better than average degrees of success, for three winters now, and while it takes the "professorial mind" a long time to commit itself in public print, the writer is ready to say that it looks to be not only a very practical and satisfactory method, but a very successful one *provided* —yes, I know you'll say "there is always a string to these things"—and that is right. The string is usually the only thing that keeps these things from running away with us or getting us down, one way or another.

The only "string" on the electric brooder problem that I can see is one of management. It's a new method, operating on a new principle and, therefore, requires changes from your old coal or oil burning methods—not a great many to be sure, but they must be changed for this new method or, as with most anything else, you can have your troubles. Ten of the important items in management are:

(1) Read the instructions three times a day for the first three days; this alone often prevents "after pains."

(2) Don't expect an electric brooder to act like an old hen and do *everything* for you.

(3) Give close attention to the chicks and brooders for the first week particularly. Use a lot of common sense.

(4) Change your ventilation morning and night.

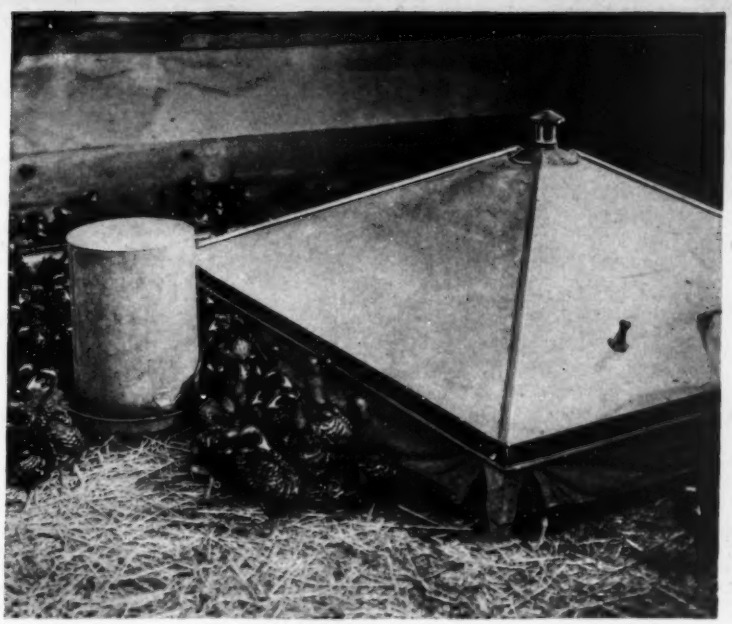
(5) Keep your floor drafts down to a minimum with your curtains at the proper height and using metal guard rings outside the brooder.

(6) Feed and water your chicks *under* the brooder in low containers the first few days. Always place feeders like spokes in a wheel. Chicks chilled by being "fenced" out of the brooder by feeders is not the brooder's fault.

(7) Keep your water clear, clean and unfrozen.

Left: Electric brooder with fan in the top on the farm of Arba Brutus, Pine Village, Indiana. Feed troughs placed radially like spokes of a wheel, to prevent chicks being "fenced" out of brooder by feeders.

Right: Electric brooder in operation on a Warren County Indiana Farm.



(8) Don't let a moist ring around the outside worry you, but clean out all damp litter *at least* twice each week.

(9) If you have bad floors a little building-board pad or platform under the brooder will help.

(10) Don't bake the chicks. Especially at night see that ventilators are opened up. Chilling occurs much more easily after over-heating.

Now those 10 points are not so "tough a string" as to cause any up-and-coming poultryman too much worry. Cleaning out the damp litter will give him the most to grumble about, and I should have advised three times a week, instead of two, in bad weather, but he'll soon learn that it pays to do it that often.

There is one other question generally raised and that is, "What do you do when the current goes off?" It's a difficult question to which to give an answer that will satisfy everyone, but let us look at the facts and see if this problem isn't more in our mind than it is in actuality.

The temperature that prevailed when the current went off would make a lot of difference, naturally. If it was very cold probably the chicks would begin to chill seriously in less than an hour. If not so very cold they might go two hours.

Twenty minutes nowadays is quite a long interruption of electric service from just ordinary, casual causes, that are quickly fixed. Certainly bolts of lightning which might cause longer repair time are out of the question at this time of year.

Well, what is it then that causes a long interruption of current in the brooding season that would be dangerous? Three things:

(1) Sleet forming heavy ice on the wires.

(2) Sticky snow doing the same.

(3) High velocity, heavy winds causing broken tree limbs.

The first two will occur near the freezing point which isn't terribly cold and will give you time to take care of them. The third one, high winds, may be accompanied by very low temperature and with that combination you would want to keep moving. But these conditions which really paralyze the service for any length of time are comparatively infrequent.

There are many ways of meeting such a situation. Some men are ready to carry auxiliary heat to chicks—coal or oil burning devices. Others plan to carry the chicks to the heat—to the house cellar, using day-old chick boxes. The ingenuity of the poultryman can meet this situation.

Brooding 3,300 chicks a year for the past two years, with losses of about 10 per cent during two of the coldest winters on record in this section, indicates that the method is practical. Our brooding was carried on continuously from Thanksgiving Day through to spring weather, and temperatures of 30 and 35 below zero prevailed often. For several days at a time the average 24 hour temperature was zero. This year the weather has not been so severe and our losses are only one-quarter of the figure mentioned above.

Complete results of the experiments are in Station Circular 46 of the New Hampshire Agricultural Experiment Station at Durham, N. H., but here are some of the points of particular interest:

The growth of chicks was very favorable, uniformity was well in evidence, and feathering was more rapid than similar lots under hot water brooding.

Insulation of walls, ceilings, and the whole floor area does not produce any better results than uninsulated houses and, therefore, is not worth the cost.

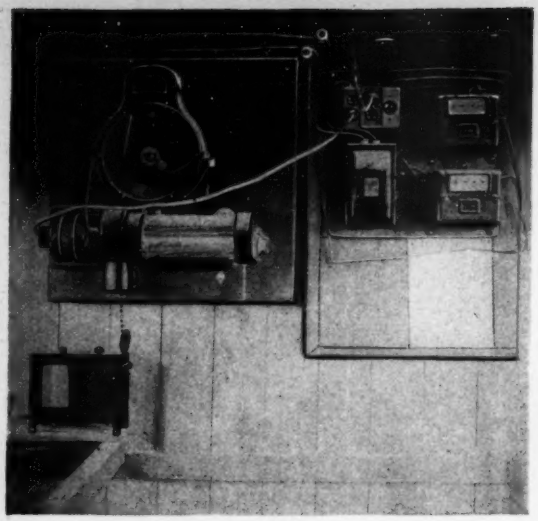
The average brooder house has leakage enough so that in cold weather no house ventilation is necessary.

Frequent removal of litter is necessary.

Electric brooders resulted in a net saving in labor as compared with coal-burning brooders in colony houses.

Less labor is required to keep the brooders in proper shape and get them ready for another season's run.

Fire hazard is reduced to a minimum.



Left: The instruments for measuring humidity and temperatures together with the electrical control panels and meters used in the testing work.

Below: Sturdy chicks produced in electric brooder which has been in service for eight years on a Michigan farm.

The equipment consisted of 56 inch brooders of three makes, under each of which 225 chicks were brooded for the six weeks period.

The heating units were in the neighborhood of 440 watts and operated on 110-115 volt circuits.

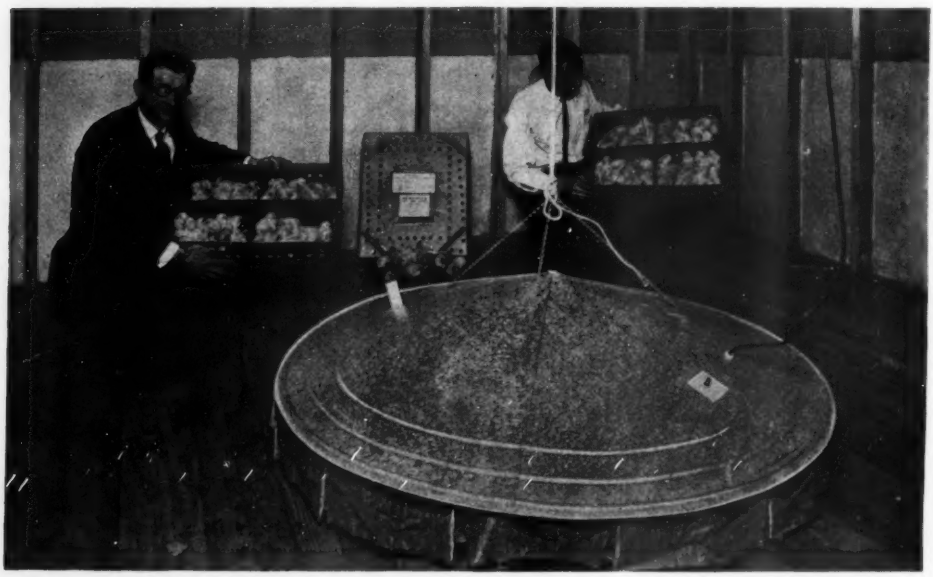
Electric water warmers were used.

The houses used for the experiments were in all stages of depreciation. One was brand new and one had a large hole burned through the floor that we had to patch, where a red hot brooder stove went through a few years ago. The roof sagged badly; it had cracks and holes and poorly fitting windows. All gradations between these two existed. All houses were roughly banked up underneath to keep out the wind but only as the average poultryman would do it.

During the first year's experiments we proved that insulation of walls and ceilings accomplished nothing, so last year we attacked the problem of floor construction. We left one house with double wood floor with paper between; to another we added a ½ inch layer of insulating board and two layers of paper; to a third we had two layers of ½ inch insulation and two thicknesses of paper; to the fourth we added three ½ inch layers of insulation and two thicknesses of paper—starting in each case with a rough wood floor and ending with a board floor on top. In each layer of insulation were placed thermocouples to measure the heat loss or cold entry. The net result of all readings indicates that some local insulation directly under the brooder is desirable and effects a saving with better results, but that complete insulation of the entire floor is an unwarranted expense serving no good end.

Undoubtedly some improvements in brooders will occur, but the results from our own tests and reports from users in the field show that the majority are getting good results and are well satisfied. In one instance the opposite was the case. The man had several electric brooders and obtained very unsatisfactory results. Investigation disclosed that he had similar experiences with every other kind of equipment, and he had tried most everything. He refused to change some of his peculiar methods of management from the old to the new, hence trouble; but note that he had the same trouble with all kinds.

Getting acquainted with one or two electric brooders for a starter is much better than plunging into a complete change-over all at once. And don't pamper them in a warm room. Your chicks and the brooder will do better in a cold house.



A one-quarter HP. electric motor operates Martin Volrath's seed cleaning mill.

SEED CLEANING— a Profitable Job

By I. P. BLAUSER

THOUSANDS of farmers in the grain growing sections of the United States are passing up a golden opportunity to realize a high return on an investment in seed cleaning and grading equipment. Likewise the small amount of labor required for cleaning and grading seeds and grain on the farm is a very profitable use of time, particularly since much of the cleaning and grading can be done during the winter months.

There is probably no more important duty connected with farming than that of securing and planting good seed; seed not only disease free but also free from dirt, trash, weed seeds and other seeds.

It is quite evident from numerous surveys that have been made in different states that farmers for the most part spend considerably more time and attention upon the preparation of the soil and the fertilization program than they do upon the selection and cleaning of the seed they sow. In a well balanced program all the factors entering into efficient, economical production must be given their due consideration. Much of the effort spent in the preparation and fertilization of the soil can be offset by not giving sufficient attention to the seed sown. The purity of the seed is important, the seed should be mature and capable of producing strong, healthy plants; it should be free from dirt and sticks, and should be free from weed seeds. Experiments show that shriveled or lightweight seed generally do not develop into strong, mature plants. On the other hand, however, experiments have shown that there is not necessarily any marked advantage in planting the largest or heaviest seed.

A review of a number of experiments in regard to the planting of three distinct grades of small grains, large, small and unselected, led to these conclusions: (1) When planted to permit maximum development of individual plants a higher yield is obtained from large seed than from small seed. (2) When planted in equal numbers at a rate best for the large seed, a lower yield is obtained from the small seed. (3) When planted in equal weights, at a rate that is best for the large seed, all three grades of seed (large, small, and unselected) yield equally. (4) When seeds are planted in equal volume, as with a drill set at uniform rate, slightly smaller yields are likely to result from the lighter or smaller seeds. The results of course would be different if immature, or shriveled seeds were used for the light seed classification, because many would not germinate, or produce good plants.

It seems, then, that for small grain the chief value of the fanning mill is the removal of weed seeds, immature or shriveled grain, and trash. That, however, is a very important function. It has been estimated that the loss caused by weeds in the United States is over three billions of dollars annually. That annual loss is caused by weeds in the following ways: (1) by reducing the quantity and quality of crops produced; (2) by harboring disease organisms, and insect pests which attack crops; (3) by increasing labor and equipment cost on farms; (4) by reducing the quantity and quality of livestock products; (5) by increasing commercial labor and equipment costs, and (6) by the depreciation of land values.

The weed problem is particularly troublesome in the spring-wheat area, due primarily to the type of farming and the fact that the seed sown contains many weed seeds. A survey made a few years ago showed the majority of samples collected from drills contained dockage consisting of dirt, trash, weed seed, and other foreign material, most of which could have easily been removed by common fanning mills. Many of the farmers were sowing the wheat just as it came from the thresher, and one sample collected contained 18 per cent dockage.

Many states have seed laws which set up standards to be met by commercial seedsmen in the sale of seed. Records show, however, that most of the

seed planted is not secured from seed dealers but is grown upon the farm or secured from a neighboring farm.

During the 1935 wheat sowing season drill surveys were made in Ohio and New York. These surveys gave some very interesting results. The surveys consisted of taking samples from drills at the time of planting and then making analyses of the samples. This, of course, gave the actual quality of the seed sown. In Ohio, of the 98 samples collected and analyzed, only 20 samples were free from weed seeds. Cockle was found in 52 samples, and cheat or chess was present in 57 samples. Both cockle and cheat were present in 31 samples. Twenty-four samples contained small weed seeds, which indicates that no attempt had been made to clean the grain, or a very unsatisfactory choice of screens had been made. Practically all of those small seeds could have been removed by one screening on most any fanning mill. One of the samples showed that at a seeding rate of two bushels of wheat per acre, weeds were being seeded at the rate of 230,760 seeds per acre. Certainly a practice like that will offset any weed eradication program. That it is possible to secure clean seed is shown by the fact that one out of every five samples was free from weed seeds.

Another part of the survey made in Ohio consisted of taking samples of 151 carloads of wheat from the 1935 crop at three of the larger mills in the state. The analysis showed that on a basis of 1,400 bushels per car only 28 cars had less than 100 pounds of weed seed per car. One car had more than three-quarters of a ton of weed seeds.

In the New York survey, samples were collected directly from farmers' drills on 120 farms. The source of the seed and the method of cleaning was secured in most cases. Less than four per cent of the sample represented certified seed, and the purchasing of seed was very limited. Only 35 per cent of the farmers knew the variety of seed they were planting, and many were using mixed varieties. Cockle was present in 76 of the samples, and seeds of chess, quackgrass, wild buckwheat and wild mustard were present in many samples. A majority of samples had been cleaned by dealers' mills or by farmers' fanning mills.

It is true that not all weed seeds and grains are easily separated. The common fanning mill costing from $40 to $50 will take care of most separation and certainly has a place on most farms. If electricity is available, the use of a small electric motor, usually ¼-hp., will eliminate the handturning of the mill. That not only eliminates a tiresome job, but also gives better operation because the motor does not have a tendency to slow down or give irregular speed.

Upper: This fanning mill was one of the first pieces of equipment to be motorized when Henry Coleman received high-line electric service ten years ago. The motor is used on the corn sheller also.

Center: Leo Coleman cleans all of his soybeans on this mill which is operated by a one-quarter HP. motor. Note that the beans are fed into the mill hopper from an overhead bin and that a bagging elevator is used.

Lower: Stanley Eliott is grading hybrid seed corn with a rotary grader and one-sixth HP. motor. Exact speed is an important factor in the efficient operation of this grader.

Close-up view of the seed cleaning equipment on the Leo Coleman farm.

The soybean seed crop is showing rapid gains, and the farmer who is selling soybeans for seed has a very good opportunity to turn some of his spare time during the winter months into cash by cleaning and grading the soybeans that he expects to sell for seed. Ordinarily, an increase in selling price of from 25 cents to 50 cents per bushel may be expected by cleaning them on the farm. The cracked and split beans that are removed are just as good for stock feed as the whole beans. In fact, beans are usually ground or cooked before being fed to livestock. At an increase in price of only 25 cents per bushel, the cleaning of about 200 bushels of soybeans would pay for the mill.

Hybrid corn is gaining in popularity, and in order to meet all the demands for seed and to keep the cost as low as possible, it is necessary to use the butts and tips of the ears as well as the center portion. That calls for grading and the use of the correct planter plates for the different grades. The production of hybrid seed corn requires special care in production and also in preparation for market. In order to get the seed accurately graded the speed of the grader is a very important factor. The corn grader should be operated at constant speed, and the electric motor is ideal for that operation.

The amount of power used in the cleaning and grading operation is very small, being only one to two K.W.H. for cleaning and sacking 100 bushels of grain.

Along with planting good clean seed must go a weed eradication program which may also include cutting or pulling of weeds, whose seeds are difficult or impossible to separate by ordinary mills, from the field from which the grain is to be saved for seed. In the long run it is the farmer who pays the most of the annual weed bill through lower return for his crop. Clean seed pays, and that probably is the simplest and most effective single method of attack on the weed problem.

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CHRISTMAS G

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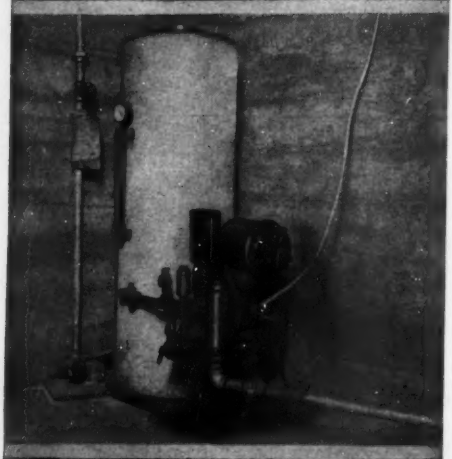


WASHING AWAY HOUSEHOLD WASTES

By TRUMAN E. HEINTON

A CONVENIENT, dependable water supply system is the key which unlocks the door to the comfort and health created by a bathroom in the farm house. Water supply must be adequate at all times to aid in proper disposal of the wastes from this bathroom, the kitchen sink and laundry facilities.

Studies at the University of Illinois, of factors affecting the efficiency and design of septic tanks, disclose the close relationship existing between the sewage flow and water consumption in the house. Water consumed in a farm house and rate of sewage flow were measured and it was found that where all the house supply was used in the home and where all the house drainage was discharged into the sewer line that the two were approximately equivalent. The sewage flow varied during the year as shown by variations in water consumption but the average daily flow for a 14-day period was 34.1 gallons per capita per day. Water consumption was 39.5 gallons per capita per day for the three people in the family.

The significance of this close relationship between the quantity of water consumed and that discharged into the sewer emphasizes the importance of the need for dependability and adequacy in the water supply system if proper disposal is made of household wastes.

One of the first considerations to be observed in insuring an adequate supply of water for the house is, logically, the source of that supply. This should be one which is free from any danger of contamination and will most likely be a well or cistern. Flowing streams are not safe sources of water supply for the farm where the water is to be used for human consumption. The choice

Upper: Wells inadequately protected from surface seepage may become a source of disease. Hand pumps of this type are discarded when electric pumps are installed to make the water do the running.

Center: The automatic electric pump in this Clinton County, Indiana, farm house provides water for all household and farm needs.

Lower: Running water at the kitchen sink aids in disposal of liquid wastes from the kitchen on this farm in Howard County, Indiana.

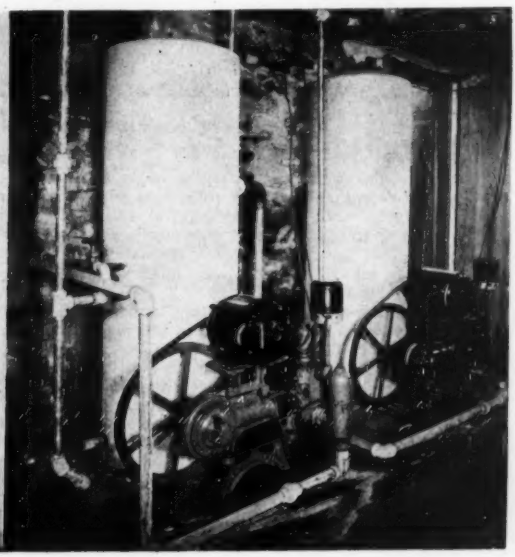
between well and cistern as a source of water supply must depend largely upon local conditions, such as amount and frequency of rainfall, depth to water carrying strata in the earth and water requirements of the farm.

Wells are usually classified as of three types: dug, drilled and driven. Each of these three types has its practical limits, advantages and disadvantages. The first type was that used in pioneer days because it could be dug by available labor. Such a well must, of necessity, be rather shallow and the sides must be lined. Surface protection against seepage into the well or entrance of small animals must be provided. A severe outbreak of typhoid fever in one Indiana family in 1934 was definitely traced by health authorities to contamination of the water in a dug well by seepage from the outhouse.

Driven wells are practical only where the suction pipe with a sharp perforated suction point may be driven to the water level. Obviously, in soil where rocks are imbedded or where solid layers of rock are above the water table, this type cannot be used. The drilled well may be used under all conditions but is apt to be more costly than a driven well where the latter may be installed. Both driven and drilled wells are less susceptible to surface contamination than a dug well but these should be protected with a concrete mat around the top, sloped so as to drain away from the well.

Wells should be tested by pumping to insure that the volume of flow is sufficient for the needs of the farm. The necessity for this was revealed in a recent case with which the author had some contact. An electric pump was installed on a drilled well, which had furnished sufficient water for hand pumping, and in a short time exhausted the supply. A careful check showed that the rate of flow amounted to only 10 gallons per hour so that a new well had to be drilled to obtain the required supply.

Cisterns are used on many farms for storing rain water for washing purposes where the supply of well water is hard and, on others, for all uses. In either case, the cistern should be of watertight construction and the top protected from entrance of surface water or other material. The use of a filter is particularly desirable to remove leaves and other refuse which is carried down from roofs to the cistern. Where the cistern is used for storing the entire water supply for the farm, some investigation of rainfall records should



Above: Running water aids in laundry work and disposal of laundry wastes.

Lower left: Wife of a Delaware County, Indiana, master farmer finds running water saves many steps. Fresh water is available from the center faucet in a few seconds.

Lower right: Two shallow well automatic electric pumps furnish hard and soft water for this Indiana farm house.

be made, before it is constructed, to insure that its capacity will be ample to hold enough water so that there will be no danger of shortage in periods of dry weather.

The total amount of water required daily, on any particular farm will depend upon the number of persons living on the farm, plumbing equipment in the house, the number of animals to be watered and other uses for water, such as sprinkling, stable flushing, etc. The University of Illinois studies, previously mentioned, included a study of water consumption in nine farm houses. This revealed that only 10 gallons per person per day were used for household use with eight people in the family while in a family of three the corresponding consumption was 47.5 gallons. Tests at the Michigan State College on water consumption by dairy cows showed an average for ten cows of 16.68 gallons per day, varying among animals from 13.46 to 20.35 gallons per day. Estimates by agricultural engineers of state agricultural colleges on daily water consumption of other animals is 12 to 15 gallons for a steer, horse or mule, 1½ to 2 gallons for a sheep or hog and 2 to 3 gallons per 100 chickens.

Pumps available for lifting water from the well or cistern and forcing it to the place where it is to be used are of two general types, shallow-well and deep-well. The first is for use where the water stands within 22 feet vertically of the pump and the latter where the distance exceeds that amount. In the case of the shallow-well pump the entire outfit may be placed at some distance laterally from the water supply. The storage tank of the deep well outfit may be placed in any convenient location but the pump head must be installed over the well. The size of the pump required will vary with the amount of water needed on the farm but for most farms a capacity of 300 gallons per hour should be provided.

The source of power for either type of pump may be human labor, gas engine, windmill or electric motor. None of these, excepting the last, is subject to full automatic regulation, that is, will start and stop without attention. This feature of the electric motor makes it very desirable from the standpoint of operation. Another point in favor of the use of an electric motor as the power unit for the pump is the cost for power. Some field survey records reported in Circular 184 of the Purdue University Agricultural Experiment station showed a cost of $0.078 for electricity and $0.126 for gasoline per 1,000 gallons pumped. Costs for electricity were given as 5 cents per kilowatt-hour and 12 cents per gallon for gasoline. The pumps driven by electric motors were full automatic, delivering water under pressures varying from 20 to 40 pounds while the engine-driven units pumped against no pressure.

Running water pumped by an electric motor and an electric water heater make the bathroom in this Delaware County, Indiana, farm home as modern as that in any city home.

Electric power costs for furnishing running water under pressure to a farm house with complete bathroom equipment are very low. Studies for an entire year on five Indiana farms by agricultural engineers of Purdue University revealed that an average of 2.1 kilowatt-hours were consumed per month by shallow-well pumps to furnish all the water used in the house, including bathroom and sink. These figures indicate the very low cost for power to pump the water required for disposal of used water and wastes from the farm household.

Bulletins are available, on request, from the agricultural extension service of many state agricultural colleges on water supply as well as sewage disposal which will aid farmers with specific problems not covered in this article.

HOME COOKING with ELECTRICITY

LILLIAN McGILL*

WHEN using the electric range I am reminded of the feeling I always had toward a nice horse. If you have ever ridden or driven nice horses you know how you will run your hand over the horse's neck, groom her a bit, then jump into the saddle and say: "Come on my beauty—show them what you can do."

I treat the electric range the same way. You do not need to spend much time grooming, for with the white or ivory porcelain, just a wipe over is all she needs, but you like to run your hand over her glossy surface for she almost becomes alive at the touch, and then you turn on the button or buttons and say: "Come on my beauty. We'll show them what you can do."

And she surely does show them. The bread, pies and cakes come out a golden brown, not just today, but every day. The roasts are tender and juicy and well cooked through. The temperature control takes away the worry and you know your oven will maintain its steady heat.

Just think of the convenience of being able to

Range Control Automatic

put a dinner in the oven, set the automatic clock, go off and be gone for the day and come home and find your dinner cooked and ready for the table. And we must admit the range even goes ahead of my horse, for the horse does need driving or reining but the range will drive itself.

It outdistances my horse in another way. Even the best of horses are at times temperamental and have to have a bit of coaxing or persuasion but the range will respond to your every call.

Then a horse has to be fed whether it is used or not, but the electric range doesn't take a bit of feeding except when it is working, and even more than that, the oven will work for you one-third of the time without any current on, and the surface units continue cooking ten minutes after the current is shut off. This marvelous range never sleeps, or even dozes. Wood will go out, oil needs attention, coal will burn low and you must plan ahead when you want to cook with them, but a turn of a button sets your food cooking any time during the twenty-four hours.

Electric Range Absolutely Safe

Now one of the most important questions asked about my horse is—Is she safe? You wouldn't give much for her if she isn't, would you? And that's when the electric range can show 100%. It is absolutely safe. Nothing to blow up, catch on fire or fill your house with fumes and she is so gentle that even a child can drive her.

Is it little wonder that I run my hand over her sides and say: "Come on, my beauty, and show them what you can do."

*Paper entered for Lindemann Prize to the Twin States Gas & Electric Company.

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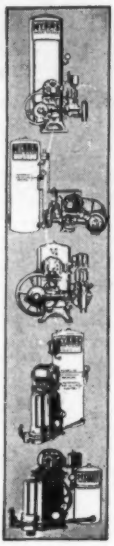

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Baking Christmas Cookies

EVERYONE in Alder Valley knows about Greta Sharp's cookies. Most everyone gets a taste of them too, sometime during the holidays, for houses are close in the Valley, and the women folks neighbor more than some.

I got to hear of them through a cousin of mine who lives three miles up Alder Branch.

"Three thousand cookies," she told me one day in awed tones. "Three thousand cookies that woman makes every Christmas time."

"Three thousand? Oh, you must be mistaken, Harriet," I protested. "Don't you mean three hundred? They'd fill a lot of cooky jars."

"No, I don't mean three hundred. I mean three thousand, and I won't come down a single cooky. You just go ask her some day, and you'll see."

That is how I happened to be driving up to the Sharp's house the very next Monday afternoon. It was the Monday after Thanksgiving. I remember, and Greta had told me, when I called her on the telephone, that she'd likely be starting to make her cookies, then.

"How on earth did you ever get the idea of making three thousand cookies?" I asked her curiously, when, after taking off my things, I was comfortably settled beside a table in her cheery kitchen that already had a pleasant spicy smell of baking.

"Well, of course, I didn't start out to make three thousand cookies, Gail. It's just grown and grown and grown until that was the cooky census last year. Goodness knows what it'll be this year. I have some grand new recipes, I want to try."

"What got you started?"

"It began fifteen years ago when we moved onto this place," Greta glanced at the clock and stepped over to her electric range. Opening the oven she pulled out a tin of fragrant cookies. "Alice Ellen was just a baby and Dickie hadn't come yet," she went on, deftly sliding the cookies off the tin onto a wire rack. "We hadn't much money, but I wanted to do something for all the folks who had been so kind to us since we moved in. Then Bert suggested that I make up a lot of cookies like those my mother used to make for Christmas. He said he'd paint me a lot of tin cans; we had some, and we could get any number more,—and we'd fill them with cookies for gifts. That was the beginning."

Fifteen years ago Greta made three or four kinds of cookies, doubling the recipes and making them over and over again until she had enough. In those days she creamed and beat and mixed each heavy cooky mixture by hand, and she baked every

pan of cookies in the oven of a big wood burning range.

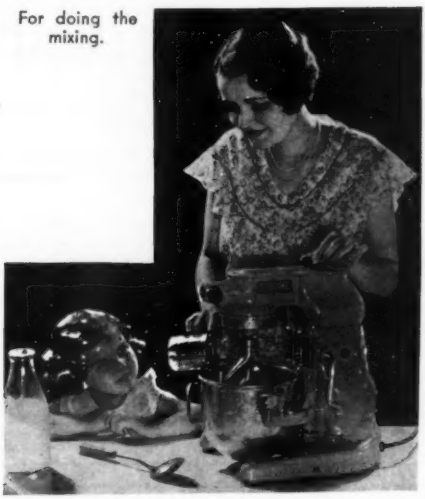
"That was a grand oven," she said reminiscently, "almost as good as this oven on my electric range,—so long as I fed it the right wood, and kept an eye on the dampers and drafts. But let me forget it for a time, and I might find a pan of cookies burned to a crisp or the fire sunk to a listless bed of coals. Yes sir, it took no little skill to keep the fire just right,—a low, slow fire for the hard little pfeffernüsse and a brisk hotter fire for the wafer thin sugar cookies I decorate with Christmas trees and holly wreaths made of colored sugar and tiny candies. I had to keep one eye on the baby, one eye on the woodbox, and one eye on the dampers—"

"Here, here, you can't go on like that indefinitely. You've already run out of eyes."

"That's what always happened with my cookies those days. I *did* run out of eyes, and hands, and temper, too. But you didn't come out here to have me tell you what I used to do."

No, while I was interested in hearing about it, I had wanted to learn, more particularly, how any busy housewife manages in the rush of the holiday season to find time to make three thousand little cookies for her own family and her friends.

"It isn't such a big job as it sounds," Greta had finished rolling out another sheet of cookies and was cutting them out as she talked. "Right after Thanksgiving we begin. Everybody helps with them now. We often make a batch or two in the evening before the children settle down to study. Dick can run the mixing machine as well as I can, and that mixer has taken all of the hard labor out of the job. Alice Ellen and I get out the materials



For doing the mixing.

and measure and sift. Dick runs the mixer and Dad bakes. Oh, yes, when all he has to do is dial for the right temperature, turn a switch to build the fire, and watch the clock to find out when the cookies are done, Dad can bake cookies as well as anyone. Besides the baby can tell time now and if he gets to reading the paper, she watches the clock and reminds him when it is time to take the cookies out.

"Of course, I do make a lot of them when I'm

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Cookies for dessert with the pudding.

alone during the day, but you can see that it is not such a great job at that."

The children love it. As long as they can remember, making Christmas cookies has been as much a part of Christmas as trimming the Christmas tree. Long before Christmas some thirty different kinds of cookies are packed away in stone jars, tin cans, and wooden firkins. Each can or jar is labelled, for every one in the family has his favorites that he wants to be able to reach without much hunting. And all the friends of the family have their favorites, too, so when Greta serves cookies during the holidays, she lays them out row on row, all thirty kinds on a big chop plate so every one can have the kind he likes best.

"Where do you get your recipes?" I asked her next.

"My mother, and my aunts. Bert's folks, and oh, just everywhere. I use a lot of old German and Norwegian recipes, and some early American ones too. I like them because they make cookies that were meant to keep a long time. In these last years I've been making a good many refrigerator cookies, too. I roll them tightly and wrap them in waxed paper. Then I store them before they are baked instead of afterwards. It doesn't take long to bake a tin in my electric oven or in my roaster. Everybody likes cookies, I find, and we've just turned them into another way of saying 'Merry Christmas.'"

Filling the Cooky Jar

Pecan Spice Cookies

1/3 cup butter
1 cup light brown sugar
2 eggs
2 cups sifted flour
½ teaspoon baking soda
½ teaspoon salt
¼ teaspoon cloves
½ teaspoon nutmeg
1 teaspoon cinnamon
½ cup sour milk
1 cup chopped pecans

Cream butter in electric mixer, add sugar and beat until creamy. Add eggs and beat thor-

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oughly. Add mixed and sifted dry ingredients alternately with milk. Add pecans. Drop by teaspoon on baking sheet. Bake in preheated electric oven.
Temperature: 425 degrees. Time: 10-12 minutes.

Sprengerle

1 tablespoon butter
1 pound granulated sugar
4 large eggs
1 tablespoon anise seed or few drops anise oil
1 pound flour, sifted
2 teaspoons baking powder

Beat butter, sugar and eggs together in electric mixer for fifteen minutes. Add flavoring and small amount of flour and beat. Add remaining flour and baking powder. This makes a dough stiff enough to handle. Roll ¼ inch thick with a springerle rolling pin and cut cookies apart. Allow to stand on a board overnight to rise. Bake to very light color on greased baking sheet in preheated electric oven.
Temperature: 375 degrees. Time: 18-20 minutes.

Scandinavian Christmas Cookies

2 yolks hard-cooked eggs
1/3 cup butter
5 tablespoons granulated sugar
1 tablespoon heavy cream
1 egg yolk
1 cup sifted flour
Grated rind ½ lemon
Few grains salt
1 egg white, slightly beaten
2 tablespoons chopped almonds
3 lumps sugar, coarsely broken

Rub hot, hard-cooked egg yolks through sieve and cream with butter in electric mixer. Add sugar and beat until creamy. Then add cream and egg yolk. Stir in flour, lemon rind and salt, using enough flour to make a dough stiff enough to roll. Roll on floured board into a thin sheet and cut out with star shaped cooky cutter. Place on greased baking sheet. Brush with egg white; sprinkle with almonds and sugar. Bake in preheated electric oven.
Temperature: 375 degrees. Time: 20-25 minutes.

From the note book of Dorothy Ross Mackey, Niagara Electric Service Corp.

Anise Drops

3 whole eggs
3 cups med. brown sugar
1 teaspoon soda dissolved in 2 tablespoons hot water
1 rounding tablespoon anise seed
½ teaspoon salt
4¼ cups bread flour

Beat eggs until very light, add brown sugar and continue beating, add anise seed and salt, then add dissolved soda and flour. Form dough into small balls the size of a hickory nut, roll in granulated sugar and place on buttered cooky sheets about 1 inch apart. Bake about 12 minutes in a 375 degree oven. Do not remove from pan until cool.

Norwegian Nut Crescents

1 lb. butter
½ lb. unblanched almonds, ground
1½ cups powdered sugar
4½ cups bread flour
Sherry sauce (about 5 teaspoons)

Cream the butter, work in the dry ingredients and add the sherry. Use enough sherry so that the dough holds together well, but is not sticky. Roll small portions of the dough between hands and shape into crescents about 3 inches long. Bake in 425 degrees for about 15 minutes until a golden color.

Ice Box Cookies

1 cup brown sugar
1 cup white sugar
1 cup butter
½ cup lard
3 eggs
1 teaspoon soda in little hot water
½ lb. shelled almonds or walnuts
4 level cups flour
2 teaspoons cinnamon

Mix in order given. Chill in deep pan or any mold that will shape the dough for cookies. Chill until very cold. Slice thin with a sharp knife and bake at 425 degrees 8 to 10 minutes.

From the files of Vera B. Ellwood, The Milwaukee Electric Railway and Light Company.

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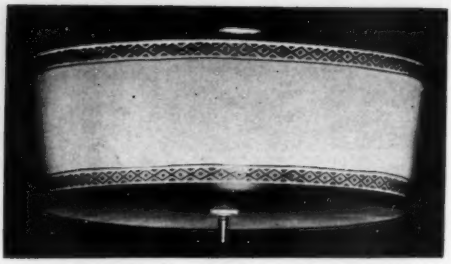

DINING LIGHT

IT doesn't take very much light to see to eat. Since that is the case, measuring light by foot candles does not seem such an important matter in the dining room.

It isn't—at meal time.

Fashion has rather set the form for dining room lighting, a center fixture and wall brackets. But even if you follow the fashion, getting the right light from them requires some thinking and planning. If you want the wall brackets purely for decoration, well and good. Have them by all means. But select a bracket with a shade that covers the bulb, either sending the light upward out of your eyes, or diffusing it pleasantly through glass of some sort.

Above: This single fixture has three bulbs inside the parchament shade.

Below: All of the bulbs are shaded. The floor lamp can be drawn up to the table while the children study.

The center fixture, if it is the dome type, should hang about 24 inches above the table. This will be low enough so the direct light from the bulbs will not shine in the eyes of the diners, and high enough so *you* can look across the table at the person opposite you.

If the fixture is a shower or candle type, it should hang, so the experts say, 36 inches above the table,—and all the bulbs should be shaded. If you find the exposed bulbs difficult to cover attractively, you may be able to modernize the fixture with a parchment drum shade like those we showed you for the living room.

In many dining rooms the lighting unit is set up close to the ceiling and made of some decorated glass that diffuses the light well, making a pleasant, even, glow.

Studying is one of the hardest tasks that the eyes at your house have to perform, and it has to be done by young eyes, too, eyes you want to protect and preserve.

In writing about lighting the farm home, Miss Florence Wright of the College of Home Economics at Cornell University says,

"We all appreciate the ease with which we can produce light after nightfall, but we do not pay enough attention to the kind of artificial light we use—its quantity and quality. We are annoyed by glaring light that tires our eyes, we wish for more light in dim corners, and we worry when our children have to wear glasses. But only recently have we begun to think seriously about these annoyances which may easily become more than that.

How would you like this one over your dining room table?

"Efficiency experts tell us that we tire more quickly when we work under a poor light, and teachers have discovered that children behave better and do better work in a well lighted schoolroom. Of even greater importance is the fact that many nervous and organic ailments are directly traceable to eyestrain."

Going on further to discuss the truly appalling number of persons whose glasses indicate defective eyesight, she says,

"We can do much to prevent this, for it has been proved that eyesight becomes sharper and more accurate with better lighting."

Considering these points, we all agree, I feel sure, that the lamp over the dining room table where the children study, night after night, should give them plenty of light. Plenty of light for young eyes to study by means at least 25 foot candles. It would be hard to get this amount of light from a ceiling fixture, or any of the ordinary dome lights. It would be better to use a floor

lamp or a study lamp that can be brought right up to the table to give them the light they need.

If you are just planning the lighting at your house and can take advantage of all these new discoveries to make your lighting effective and modern, you may like one of these new better sight lamps designed for dining rooms.

This lamp has the same features as the floor lamp, the large glass bowl that sends a soft light down on the table, and opens at the top to send some light up toward the ceiling to help the general lighting in the room. The shade is thick enough to conceal the bulb, and lined with white to reflect the light. The bulb for this lamp is made so that it will give three different quantities of light. By changing the switch you can turn on 300 watts, or 200, or 100. The 100 watt lamp gives you enough light for eating. The 200 or 300 will give your children a good study light for it gives from 15 to 25 foot candles even out at the edge of the table where they will have their books.

Merry Christmas to You!

HERE'S a bit of good news. Next year, the Publishers say, we can have a little contest of our own, just here in the household department.

If you would like to have an extra five dollars in your purse, write me an answer to the question:

"What piece of household equipment saves you the most work?" Don't write more than 300 words, and send in your letter by January 5. Then if your letter is chosen for publication, you'll get the check.

Explained

College Boy Wit: "Your school is not an educational institution; it's a match factory.

Girl Student: "Maybe you're right. We furnish the heads and get sticks from the men's colleges.

Success

Success depends on overcoming not only the larger, but also the smaller, obstacles.

As soon as tea was finished Farmer Beeton announced to his household that he was so tired of eating badly-made bread that he would make the next day's supply himself.

"Good idea," agreed a visitor. "I'll lend you a hand if you like."

Together they departed kitchenwards, one bearing a bag of flour, the other a drum of yeast.

It was past midnight and still the amateur bakers were hard at work. The farmer's wife ventured to ask whether the bread was in the oven.

"In the oven?" cried Beeton. "We can't keep it in the kitchen, let alone the oven."

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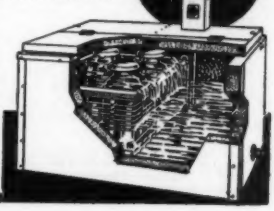

ESCO CABINET COMPANY

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ON THE AIR

Conducted by JEROME J. HENRY

Real Romance in Fan Mail

FROM comedy to the realm of romance swing the messages received from listeners by Lanny Ross, popular favorite of the new State Fair Concert broadcast each Sunday evening.

Lanny found on the top of a recent batch of letters a telegram from a friend that seemed amusing enough to read to his fellow radio workers.

This fellow is a keen juggler of words, Lanny observed. The telegram was devised in nine words

Fred Astaire now on the radio waves.

to carry a message that would have taken 18 words in ordinary language. Here's what the sender of that telegram wrote:

"Bruises hurt erased afford erected analysis hurt infectious missing."

When transcribed by Lanny Ross the economy message read:

"Bruce is hurt. He raced a Ford. He wrecked it. And Alice is hurt. In fact she's missing."

That fellow knows how to put words to work for him, Lanny believes.

In the same sheaf of communications Lanny found a letter which read, in part:

"Unknown to you, you played Cupid to two very ardent fans of yours. Two young people met when they joined a Lanny Ross Fan Club four years ago. They celebrated the 4th of July by getting married and have just returned from their honeymoon."

That completes a cycle which radio engineers do not have marked on their charts.

• • •

Backstage Wife

VIVIAN FRIDELL, one of the most talented of young radio actresses, is the Mary Noble of Backstage Wife. Only 23, she has been working in radio since her first year in college, when she had her own program on the air over the University of Wisconsin broadcasting station. Vivian is not married. She has golden brown hair, is 5 feet 6 inches tall, and a graduate of the University of Wisconsin.

• • •

Singer Owes Start to Good Looks

DOROTHY PAGE has her beautiful face to thank for starting her on the road to fame as a singer.

Just a few years ago Dorothy had a typist's job in a big Philadelphia publishing company. She came to work early and stayed late hoping to earn enough money for voice lessons.

When a local beauty contest was announced, fellow employees persuaded Dorothy to enter it. Much to her surprise she won, in a dress she'd borrowed from a friend.

"I was thrilled, of course," Dorothy explained. "But I still couldn't see much point to the whole affair. It didn't bring me any money—just a blue ribbon."

A few days later the whole picture changed when Neysa McMein, noted artist and judge of the beauty contest, called at Dorothy's office and asked the little stenographer to pose for a magazine cover. In quick succession she posed for other covers, for posters, etc.

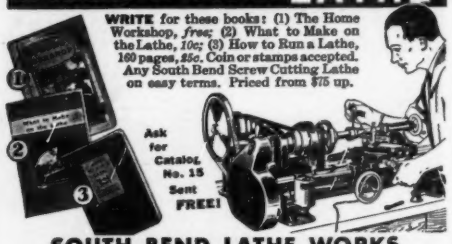
Before she realized what was happening Dorothy was famous for her face.

It wasn't long before she entered another con-

(*Continued on page 29*)

WHAT TO MAKE *and how to make it* ON A LATHE

WRITE for these books: (1) The Home Workshop, *free*; (2) What to Make on the Lathe, *10c*; (3) How to Run a Lathe, 160 pages, *25c*. Coin or stamps accepted. Any South Bend Screw Cutting Lathe on easy terms. Priced from $75 up.



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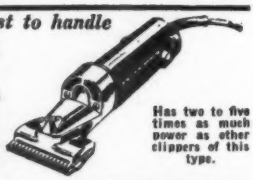

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Questions and Answers

Conducted by R. U. BLASINGAME

Motor for Buzz-Saw Outfit

Question: *Will a three horsepower motor handle a twenty-four inch saw for sawing stove wood? I am about to put in an outfit with a buzz saw for cutting my winter wood.*

Answer: A three horsepower motor will handle a 24-inch saw. Have enough set in the saw teeth to avoid binding.

Small Saw Mill Operation

Question: *Can you tell me if it is practical to try to run a small saw mill with a 7½ H.P. single phase electric motor? I would want a saw large enough to handle logs up to two feet thick or so. The speed in sawing would not be so important, if the outfit could stick to it without being overloaded.*

I enjoy your magazine very much and will appreciate any advice you can give me on this. If you can answer this directly by mail it will help me out a great deal.

B. O.

Answer: A 60 inch saw would be required to handle logs two feet in diameter. Unless we know more about the kind of mill you have and the kind of wood you expect to saw, this question is very difficult to answer.

Pump Operation

Question: *I have a centrifugal pump which has a 1½-inch suction and a 1-inch discharge. It is claimed that a one horsepower motor will pull this pump. I am a little skeptical about it. I have used it with a three horsepower engine and it made the engine work fairly well. I will say that the engine was not in the best of condition insofar as power development was concerned. Aside from this, the engine worked very good. I used the pump to pump out a couple of cesspools, sucking the water about sixteen to eighteen feet and forcing it about eight feet above the pump.*

What is your opinion? Will the one horsepower motor do the work? It takes about fifteen to twenty minutes on one cesspool. The engine must be used on the other cesspool as there is no current available.

S. T. T.

Answer: A one horsepower electric motor is of ample size for this pump. Run the pump at manufacturers' rated speed in order to obtain maximum capacity.

Run a motor of this size on 220 volts for best operation. Do not exceed more than 2% voltage drop at the motor. To accomplish this use proper wire sizes which will be determined by the length of run you need.

On the Air

(*Continued from page* 28)

test—this time a singing competition. Her prize was a contract to tour as soloist for Paul Whiteman's band. In 1934 Dorothy started her first song series on the radio. Today she's not only a radio but also a motion picture star. Her radio programs originate in Hollywood.

• • •

Wynn Has 1,000 Coats; Just One Pair of Shoes

AL BARON is a man with 1,000 coats, 800 hats, and one pair of shoes, one tattered pair of shoes that isn't worth five cents.

The reason is that Al Baron is major domo, property chief, occasional stooge and general man Friday to Ed Wynn, sometimes known as the mad wag of the air waves.

Al is always in the Wynn dressing room filled with all the coats, hats, yards and yards of freak ties, and other items in Wynn's stage costumes.

Baron is responsible for the quick and quaint costume changes that the famous radio and stage comedian makes on his program six or eight times during each broadcast. He has the costumes all picked out ready to help with the quick changes.

"We've got so many hats," he says, "that we had to rent a loft in a warehouse. Mr. Wynn uses only one pair of shoes in his programs. He's had them for 30 years. He won't give them up because he says they're lucky.

"As for the coats I suppose we've got about every kind of funny coat ever made. Many of them were sent by admirers from abroad."

"Since I've had these fast-cooking CHROMALOX Super-Speed BURNERS on my electric range

—cooking has been a REAL PLEASURE. They're so FAST and CLEAN, and they save electric current. Many of my friends use them, too, and we all think they're wonderful! They fit every make of range."

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What's New

Reviewed by T. E. HIENTON

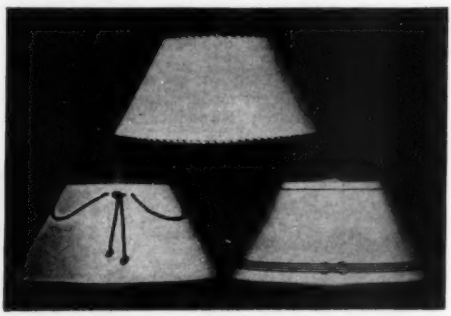
Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request. Address your requests to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

Old Lamps Made New

Lamp design, until recently, was chiefly concerned with ornamentation rather than efficient lighting. Shades frequently absorbed a large percentage of the light instead of reflecting it. New shades and lamps manufactured to specifications of the Illuminating Engineering Society reduce glare and provide more light with increased efficiency. Old lamps may be readily changed so as to take advantage of the improved designs.

Adapter and translucent diffusing bowl.

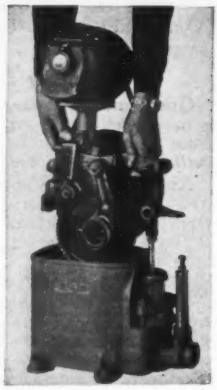
New lamps are made from old by the addition of an adapter, diffusing bowl and shade which are now available from a lamp manufacturer. The adapters, which come complete with cord, include the types of sockets necessary for converting the old style lamp to the new. These are made in two sizes, one for table and junior lamps, the second for floor lamps. Diffusing bowls are of two sizes, 8-inch for table lamps and 10-inch for floor lamps. Shades, which bear an I.E.S. approval tag, are made by this company in three styles for both table and floor lamps.



Types of shades used with adapter to transform old type lamps to the new.

Deep Well Pumping Unit

Farm houses are no longer located according to the distance to the nearest spring as they were in pioneer days. An adequate water supply is even more important now than in earlier times but the distance considered is the vertical one to a constant source of water. Deep well units, driven by electric motors, have minimized this factor of vertical distance since they furnish water from wells satisfactorily which may be several hundred feet deep.



A new deep well pumping unit, the product of a middle western manufacturer is available in twelve combinations of motor and tank size. Units are driven respectively by 110-220 volt, 60 cycle, single phase, a.c. motors of ¼-, ⅓-, ½- or ¾-horsepower capacity. Three sizes of tanks, 42-, 82- and 120-gallon capacity are available. Motors are of drip-proof construction and are mounted on adjustable bases. Bearing and working surfaces of the pumps are automatically flooded with oil inside a metal housing.

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Getchell (New method of milk pasteurization)	Feb.	11
Gifts, Christmas, electric (ill.)	Dec.	16-17
Gildner (Sheep shearing from my point of view)	Apr.	24
HAY, electric motor for hoisting	June	9
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Heaters, portable elec	Jan.	21
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Henry (Radio News). Jan.—23; Feb.—24; Mar.—23; Apr.—25; May—26; June—23; July—25; Aug.—27; Sept.—24; Oct.—23; Nov.—28; Dec.—28.		
Hienton (Automatic deep well pump)	Oct.	26
Hienton (Buhr type feed grinder)	Aug.	30
Hienton (Combination sterilizer and water heater)	June	25
Hienton (Deep well pumping unit)	Dec.	30
Hienton (Electric brooder)	Apr.	27
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Hienton (Effective aid to war on flies)	July	13
Hienton (Electric dairy sterilizer)	May	31
Hienton (Electric dairy water heater)	Sept.	30
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Hienton (Electric lawn mower)	June	25
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Hienton (Electric sump pump)	Feb.	26
Hienton (Electric water heater)	Jan.	26
Hienton (Electric water heater and steam sterilizer)	Apr.	27
Hienton (Feed grinder)	June	25
Hienton (Flexible shaft machine)	Nov.	30
Hienton (Incubating and brooding with elec.)	Feb.	7
Hienton (Lathe)	July	29
Hienton (Lighting bldgs. of the farmstead)	Oct.	7
Hienton (Milk cooling tank)	May	31
Hienton (Motor driven egg-grader)	July	30
Hienton (Multiple fuse)	Aug.	30
Hienton (Old lamps made new)	Dec.	30
Hienton (Porcelain light fixtures)	Sept.	30
Hienton (Portable electric steam radiator)	Oct.	26
Hienton (Poultry semi-scalders)	May	33
Hienton (Self-renewing mercury fuse)	Mar.	26
Hienton (Thresher)	Aug.	30
Hienton (Turbine water pump)	July	29
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Irrigation, with electricity, benefits of (edit.)	Sept.	4
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COVER TITLE CONTEST

OCTOBER COVER

RULES
December Title Contest

Ten cash prizes will be awarded for the 10 best titles for the picture on the front cover of this magazine.

The first prize will be $20 cash, and nine second prizes of $2 in cash will be awarded.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

Titles should be brief—the shorter the better.

All members of the farm family to whom this magazine was sent may submit title, but each contestant may submit only one title.

Question "A" must be answered.

Entries must be sent to the Title Editor, ELECTRICITY ON THE FARM, 6 North Michigan Avenue, Chicago, Illinois, before January 1st.

Winning names and titles will be announced in the February issue.

Send your title on the coupon or make out a similar form on a plain sheet of paper or government postcard.

$20 First Prize for October Contest

"An electric clip wins by a close shave."

MRS. C. E. BRUCE, Forreston, Texas.

Nine $2.00 Prizes for October

"Curry in a hurry—the electrical way."
LLOYD B. FULLER, East St., Suffield, Conn.

"Electrically clipped—bacteria is whipped."
MRS. WM. WILLIAMS, R.F.D. 1, Nashota, Wis.

"The electric clipper, so easy to use,
Makes high bacteria hard to excuse."
MRS. W. R. McCULLOCH, Lee, Mass.

"Bossy's highbrow—shaves by power,
Saves the milk a microbe shower."
MRS. M. J. GALBREATH, R.F.D. 5, Box 141, South Bend, Ind.

"Electrically groomed—bacteria doomed."
MR. ERLAND H. WATERMAN, R.F.D. 1, Sabbatus, Maine.

"Electric Clipping—cleaner stripping."
M. B. STAINBROOK, R.F.D. 1, Sandy Lake, Pa.

"Electric clipping paves the way
For all the milk to test Grade A."
B. REX DANCE, R.F.D. 1, Volant, Pa.

"Electricity shears her slick and clean;
Greater returns from your milk and cream."
MRS. R. E. WINKLER, R.F.D. 3, Creston, Iowa.

"An electric clip,
First aid for premium milk."
MRS. L. W. ENGLISH, R.F.D. 1, Woodstock, Vt.

My title for the Front Cover picture on ELECTRICITY ON THE FARM for December is

.....

.....

(a) Do you own a Sewing Machine?..... Is it electrically-operated?.....

What is name of manufacturer?.....

My name is..... R.F.D.....

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An easy way to select the right Christmas gift:

"IN the very first place," says Santa, "Christmas gifts have gone practical. And among the *most* practical are electrical gifts. Decide upon electrical gifts—*and the rest is easy!*

"Which, for instance, would mother appreciate most? A food mixer, refrigerator, automatic range or an I.E.S. lamp? There are many others, too, you know. The list at the right may assist you.

"Then, after mentally choosing a gift for each member of the family—visit the displays of the nearest electrical dealers. You'll find the quality gift you have in mind—and at a low price!"

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Irons
Percolators
Radios
Ranges
Refrigerators
Roasters
Sandwich Toasters
Sun Lamps
Toasters
Waffle Irons
Warming Pads
Washers
Water Heaters

Local Electric Dealers

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